802.11n
Network Protocol Analysis Solution

CACE Technologies' AirPcap N™ is the first solution to capture, decode, and visualize 802.11n protocol traffic from any laptop or desktop PC.

AirPcap N enables you to:

- Capture 802.11n traffic on 20 and 40 MHz channels with the specialized capture adapter
- View detailed decoding of control, management, and data frames in Wireshark™, including A-MSDUs, A-MPDUs, and HT frames
- Write or extend your own 802.11n lab tools using the AirPcap N and WinPcap APIs

Advantages:

- Laptop-based solution
- Access to 802.11n control, management, and data frames
- Support for 20/40 MHz channels
- Support for 2.4 GHz and 5 GHz channels
- Comprehensive 802.11n protocol dissectors
- Provides per-packet radio information, e.g.,
    - Timestamps
    - Receive rate
    - Signal noise
    - Receive power
- Integration with the Wireshark open-source network protocol analyzer
    - Interprets hundreds of network protocols
    - Easy 802.11n trace file sharing
    - Most widely used protocol analyzer
- Wireshark control interface for setting adapter parameters during capture
- Easy installation

The CACE Technologies' 802.11n Network Protocol Analyzer solution includes:

- CardBus 32 bit dual band adapter
- Windows driver (Windows XP/2000/2003 and Vista 32-bit)
- Integration into our industry-leading AirPcap API. Provides application developers the opportunity to integrate AirPcap N functionality into their own 802.11n applications
- Seamless integration into 80211n-enhanced Wireshark
- Update and support contracts available

Portable 802.11n Protocol Analyzer

Creative
Advanced
Communication
Engineering

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AirPcap N™

System Requirements
- Pentium compatible or better
- Available CardBus 32 bit slot
- Microsoft® Windows 2000, 2003, XP, or Vista (32 bit only)

Hardware Specifications
- Cardbus 32 bit dual band adapter
- Based on the Atheros AR5008 chipset
- Dual band metal PIFA Antenna x 2 and chip antenna x 1
- Operating voltage: 3.3V +/- 5%
- Modulation techniques: 802.11n a/b/g
  - DSSS (DBPSK, DQPSK, CCK)
  - OFDM (BPSK, QPSK, 16-QAM, 64QAM)
- Capture of A-MPDU and A-MSDU frames
- Supported channels
  - All 802.11b/g channels (1-14)
  - All 802.11a channels
- Supported modes
  - Legacy mode
  - HT20 and HT40 mixed mode
  - When in HT40 mode, the adapter captures HT40, HT20, and legacy mode packets
- 1μ hardware timestamps on the captured frames
- HT modulation coding schemes (MCS) 0-15
- Support for up to 2 spatial streams (channel bonding)
- 3x3 MIMO
- Detection of short guard interval

Wireshark Protocol Dissector Specifications
- Support for the following key 802.11n fields
  - High Throughput (HT) Control
  - High Throughput (HT) Capabilities
  - High Throughput (HT) Information
  - Aggregated MAC Protocol Data Unit (A-MPDU)
  - Aggregated MAC Service Data Unit (A-MSDU)
  - Block Ack/Block Ack Request
  - Multiple Input Multiple Output (MIMO) Control
  - High Throughput (HT) Action Frame
  - Measurement Request/Report

In addition to the above listed fields, 802.11 protocol analysis in Wireshark has been extended to encompass the entire 802.11n D1.10/D2.0 specification. To complement the 802.11n specification, fields from other wireless specifications (802.11ma, 802.11k, and 802.11r) have been implemented as well.

"The Wireshark/AirPcap 802.11n solution provided by CACE Technologies is a fundamental tool in Intel's 802.11n protocol testing and evaluation. Along with outstanding 802.11n protocol support, the physical layer information reported on a per-packet basis, such as noise and signal modulation, has proved invaluable. CACE's use of open source tools will ease sharing of information between Intel and our customers and competitors, which has been a long-standing issue during the extended 802.11n Draft process. CACE's quick delivery of a stable and feature-rich product is an outstanding example of quality software development and customer orientation."

— LARRY AVERITT
Intel Corporation
Mobility Group

About the Company
CACE Technologies was founded on the vision and commitment to develop the best networking products and services for our customers. Our clients and partners range from network administrators, to application developers, and corporate CIOs. We are dedicated to helping them meet all of their networking and product development needs and challenges.

CACE Technologies' staff combines accomplished computer scientists, engineers, and the team that created Wireshark and WinPcap. Their collective experience and talents come together to offer exciting networking products and a full range of engineering, development, and consulting services.

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